



## SEQUENCE LISTING

<110> DWORETZKY, STEVEN I  
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BOISSARD, CHRISTOPHER G  
GRIBKOFF, VALENTIN K

<120> HUMAN KCNQ5 POTASSIUM CHANNEL METHODS AND COMPOSITIONS  
THEREOF

<130> D0023

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<141> 2001-05-24

<150> 60/207,389

<151> 2000-05-26

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<170> PatentIn Ver. 2.1

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 Gly Lys Pro Pro Lys Arg Asn Ala Phe Tyr Arg Lys Leu Gln Asn Phe  
                     65                      70                      75                      80  
 Leu Tyr Asn Val Leu Glu Arg Pro Arg Gly Trp Ala Phe Ile Tyr His  
                     85                      90                      95  
 Ala Tyr Val Phe Leu Leu Val Phe Ser Cys Leu Val Leu Ser Val Phe

100					105					110					
Ser	Thr	Ile	Lys	Glu	Tyr	Glu	Lys	Ser	Ser	Glu	Gly	Ala	Leu	Tyr	Ile
		115					120					125			
Leu	Glu	Ile	Val	Thr	Ile	Val	Val	Phe	Gly	Val	Glu	Tyr	Phe	Val	Arg
	130					135					140				
Ile	Trp	Ala	Ala	Gly	Cys	Cys	Cys	Arg	Tyr	Arg	Gly	Trp	Arg	Gly	Arg
145					150					155					160
Leu	Lys	Phe	Ala	Arg	Lys	Pro	Phe	Cys	Val	Ile	Asp	Ile	Met	Val	Leu
				165					170					175	
Ile	Ala	Ser	Ile	Ala	Val	Leu	Ala	Ala	Gly	Ser	Gln	Gly	Asn	Val	Phe
			180					185					190		
Ala	Thr	Ser	Ala	Leu	Arg	Ser	Leu	Arg	Phe	Leu	Gln	Ile	Leu	Arg	Met
		195					200					205			
Ile	Arg	Met	Asp	Arg	Arg	Gly	Gly	Thr	Trp	Lys	Leu	Leu	Gly	Ser	Val
	210					215					220				
Val	Tyr	Ala	His	Ser	Lys	Glu	Leu	Val	Thr	Ala	Trp	Tyr	Ile	Gly	Phe
225					230					235					240
Leu	Cys	Leu	Ile	Leu	Ala	Ser	Phe	Leu	Val	Tyr	Leu	Ala	Glu	Lys	Gly
				245					250					255	
Glu	Asn	Asp	His	Phe	Asp	Thr	Tyr	Ala	Asp	Ala	Leu	Trp	Trp	Gly	Leu
			260					265						270	
Ile	Thr	Leu	Thr	Thr	Ile	Gly	Tyr	Gly	Asp	Lys	Tyr	Pro	Gln	Thr	Trp
		275				280						285			
Asn	Gly	Arg	Leu	Leu	Ala	Ala	Thr	Phe	Thr	Leu	Ile	Gly	Val	Ser	Phe
	290					295					300				
Phe	Ala	Leu	Pro	Ala	Gly	Ile	Leu	Gly	Ser	Gly	Phe	Ala	Leu	Lys	Val
305					310					315					320
Gln	Glu	Gln	His	Arg	Gln	Lys	His	Phe	Glu	Lys	Arg	Arg	Asn	Pro	Ala
				325					330					335	
Ala	Gly	Leu	Ile	Gln	Ser	Ala	Trp	Arg	Phe	Tyr	Ala	Thr	Asn	Leu	Ser
			340					345					350		
Arg	Thr	Asp	Leu	His	Ser	Thr	Trp	Gln	Tyr	Tyr	Glu	Arg	Thr	Val	Thr
		355					360					365			
Val	Pro	Met	Tyr	Arg	Leu	Ile	Pro	Pro	Leu	Asn	Gln	Leu	Glu	Leu	Leu
	370					375					380				
Arg	Asn	Leu	Lys	Ser	Lys	Ser	Gly	Leu	Ala	Phe	Arg	Lys	Asp	Pro	Pro
385					390					395					400

Pro Glu Pro Ser Pro Ser Gln Lys Val Ser Leu Lys Asp Arg Val Phe  
 405 410 415  
 Ser Ser Pro Arg Gly Val Ala Ala Lys Gly Lys Gly Ser Pro Gln Ala  
 420 425 430  
 Gln Thr Val Arg Arg Ser Pro Ser Ala Asp Gln Ser Leu Glu Asp Ser  
 435 440 445  
 Pro Ser Lys Val Pro Lys Ser Trp Ser Phe Gly Asp Arg Ser Arg Ala  
 450 455 460  
 Arg Gln Ala Phe Arg Ile Lys Gly Ala Ala Ser Arg Gln Asn Ser Glu  
 465 470 475 480  
 Glu Ala Ser Leu Pro Gly Glu Asp Ile Val Asp Asp Lys Ser Cys Pro  
 485 490 495  
 Cys Glu Phe Val Thr Glu Asp Leu Thr Pro Gly Leu Lys Val Ser Ile  
 500 505 510  
 Arg Ala Val Cys Val Met Arg Phe Leu Val Ser Lys Arg Lys Phe Lys  
 515 520 525  
 Glu Ser Leu Arg Pro Tyr Asp Val Met Asp Val Ile Glu Gln Tyr Ser  
 530 535 540  
 Ala Gly His Leu Asp Met Leu Ser Arg Ile Lys Ser Leu Gln Ser Arg  
 545 550 555 560  
 Val Asp Gln Ile Val Gly Arg Gly Pro Ala Ile Thr Asp Lys Asp Arg  
 565 570 575  
 Thr Lys Gly Pro Ala Glu Ala Glu Leu Pro Glu Asp Pro Ser Met Met  
 580 585 590  
 Gly Arg Leu Gly Lys Val Glu Lys Gln Val Leu Ser Met Glu Lys Lys  
 595 600 605  
 Leu Asp Phe Leu Val Asn Ile Tyr Met Gln Arg Met Gly Ile Pro Pro  
 610 615 620  
 Thr Glu Thr Glu Ala Tyr Phe Gly Ala Lys Glu Pro Glu Pro Ala Pro  
 625 630 635 640  
 Pro Tyr His Ser Pro Glu Asp Ser Arg Glu His Val Asp Arg His Gly  
 645 650 655  
 Cys Ile Val Lys Ile Val Arg Ser Ser Ser Ser Thr Gly Gln Lys Asn  
 660 665 670  
 Phe Ser Ala Pro Pro Ala Ala Pro Pro Val Gln Cys Pro Pro Ser Thr  
 675 680 685



Ser Trp Gln Pro Gln Ser His Pro Arg Gln Gly His Gly Thr Ser Pro  
690 695 700

Val Gly Asp His Gly Ser Leu Val Arg Ile Pro Pro Pro Pro Ala His  
705 710 715 720

Glu Arg Ser Leu Ser Ala Tyr Gly Gly Gly Asn Arg Ala Ser Met Glu  
725 730 735

Phe Leu Arg Gln Glu Asp Thr Pro Gly Cys Arg Pro Pro Glu Gly Thr  
740 745 750

Leu Arg Asp Ser Asp Thr Ser Ile Ser Ile Pro Ser Val Asp His Glu  
755 760 765

Glu Leu Glu Arg Ser Phe Ser Gly Phe Ser Ile Ser Gln Ser Lys Glu  
770 775 780

Asn Leu Asp Ala Leu Asn Ser Cys Tyr Ala Ala Val Ala Pro Cys Ala  
785 790 795 800

Lys Val Arg Pro Tyr Ile Ala Glu Gly Glu Ser Asp Thr Asp Ser Asp  
805 810 815

Leu Cys Thr Pro Cys Gly Pro Pro Pro Arg Ser Ala Thr Gly Glu Gly  
820 825 830

Pro Phe Gly Asp Val Gly Trp Ala Gly Pro Arg Lys  
835 840

<210> 30

<211> 872

<212> PRT

<213> Homo sapiens

<400> 30

Met Gly Leu Lys Ala Arg Arg Ala Ala Gly Ala Ala Gly Gly Gly Gly  
1 5 10 15

Asp Gly Gly Gly Gly Gly Gly Gly Ala Ala Asn Pro Ala Gly Gly Asp  
20 25 30

Ala Ala Ala Ala Gly Asp Glu Glu Arg Lys Val Gly Leu Ala Pro Gly  
35 40 45

Asp Val Glu Gln Val Thr Leu Ala Leu Gly Ala Gly Ala Asp Lys Asp  
50 55 60

Gly Thr Leu Leu Leu Glu Gly Gly Gly Arg Asp Glu Gly Gln Arg Arg  
65 70 75 80

Thr Pro Gln Gly Ile Gly Leu Leu Ala Lys Thr Pro Leu Ser Arg Pro  
85 90 95

Val Lys Arg Asn Asn Ala Lys Tyr Arg Arg Ile Gln Thr Leu Ile Tyr  
 100 105 110  
 Asp Ala Leu Glu Arg Pro Arg Gly Trp Ala Leu Leu Tyr His Ala Leu  
 115 120 125  
 Val Phe Leu Ile Val Leu Gly Cys Leu Ile Leu Ala Val Leu Thr Thr  
 130 135 140  
 Phe Lys Glu Tyr Glu Thr Val Ser Gly Asp Trp Leu Leu Leu Leu Glu  
 145 150 155 160  
 Thr Phe Ala Ile Phe Ile Phe Gly Ala Glu Phe Ala Leu Arg Ile Trp  
 165 170 175  
 Ala Ala Gly Cys Cys Cys Arg Tyr Lys Gly Trp Arg Gly Arg Leu Lys  
 180 185 190  
 Phe Ala Arg Lys Pro Leu Cys Met Leu Asp Ile Phe Val Leu Ile Ala  
 195 200 205  
  
 Ser Val Pro Val Val Ala Val Gly Asn Gln Gly Asn Val Leu Ala Thr  
 210 215 220  
 Ser Leu Arg Ser Leu Arg Phe Leu Gln Ile Leu Arg Met Leu Arg Met  
 225 230 235 240  
 Asp Arg Arg Gly Gly Thr Trp Lys Leu Leu Gly Ser Ala Ile Cys Ala  
 245 250 255  
 His Ser Lys Glu Leu Ile Thr Ala Trp Tyr Ile Gly Phe Leu Thr Leu  
 260 265 270  
 Ile Leu Ser Ser Phe Leu Val Tyr Leu Val Glu Lys Asp Val Pro Glu  
 275 280 285  
 Val Asp Ala Gln Gly Glu Glu Met Lys Glu Glu Phe Glu Thr Tyr Ala  
 290 295 300  
 Asp Ala Leu Trp Trp Gly Leu Ile Thr Leu Ala Thr Ile Gly Tyr Gly  
 305 310 315 320  
 Asp Lys Thr Pro Lys Thr Trp Glu Gly Arg Leu Ile Ala Ala Thr Phe  
 325 330 335  
 Ser Leu Ile Gly Val Ser Phe Phe Ala Leu Pro Ala Gly Ile Leu Gly  
 340 345 350  
 Ser Gly Leu Ala Leu Lys Val Gln Glu Gln His Arg Gln Lys His Phe  
 355 360 365  
 Glu Lys Arg Arg Lys Pro Ala Ala Glu Leu Ile Gln Ala Ala Trp Arg  
 370 375 380  
 Tyr Tyr Ala Thr Asn Pro Asn Arg Ile Asp Leu Val Ala Thr Trp Arg

385		390		395		400
Phe Tyr Glu Ser Val Val Ser Phe Pro Phe Phe Arg Lys Glu Gln Leu						
		405		410		415
Glu Ala Ala Ser Ser Gln Lys Leu Gly Leu Leu Asp Arg Val Arg Leu						
		420		425		430
Ser Asn Pro Arg Gly Ser Asn Thr Lys Gly Lys Leu Phe Thr Pro Leu						
		435		440		445
Asn Val Asp Ala Ile Glu Glu Ser Pro Ser Lys Glu Pro Lys Pro Val						
		450		455		460
Gly Leu Asn Asn Lys Glu Arg Phe Arg Thr Ala Phe Arg Met Lys Ala						
		465		470		475
Tyr Ala Phe Trp Gln Ser Ser Glu Asp Ala Gly Thr Gly Asp Pro Met						
		485		490		495
Ala Glu Asp Arg Gly Tyr Gly Asn Asp Phe Pro Ile Glu Asp Met Ile						
		500		505		510
Pro Thr Leu Lys Ala Ala Ile Arg Ala Val Arg Ile Leu Gln Phe Arg						
		515		520		525
Leu Tyr Lys Lys Lys Phe Lys Glu Thr Leu Arg Pro Tyr Asp Val Lys						
		530		535		540
Asp Val Ile Glu Gln Tyr Ser Ala Gly His Leu Asp Met Leu Ser Arg						
		545		550		555
Ile Lys Tyr Leu Gln Thr Arg Ile Asp Met Ile Phe Thr Pro Gly Pro						
		565		570		575
Pro Ser Thr Pro Lys His Lys Lys Ser Gln Lys Gly Ser Ala Phe Thr						
		580		585		590
Phe Pro Ser Gln Gln Ser Pro Arg Asn Glu Pro Tyr Val Ala Arg Pro						
		595		600		605
Ser Thr Ser Glu Ile Glu Asp Gln Ser Met Met Gly Lys Phe Val Lys						
		610		615		620
Val Glu Arg Gln Val Gln Asp Met Gly Lys Lys Leu Asp Phe Leu Val						
		625		630		635
Asp Met His Met Gln His Met Glu Arg Leu Gln Val Gln Val Thr Glu						
		645		650		655
Tyr Tyr Pro Thr Lys Gly Thr Ser Ser Pro Ala Glu Ala Glu Lys Lys						
		660		665		670
Glu Asp Asn Arg Tyr Ser Asp Leu Lys Thr Ile Ile Cys Asn Tyr Ser						
		675		680		685

Glu Thr Gly Pro Pro Glu Pro Pro Tyr Ser Phe His Gln Val Thr Ile  
690 695 700

Asp Lys Val Ser Pro Tyr Gly Phe Phe Ala His Asp Pro Val Asn Leu  
705 710 715 720

Pro Arg Gly Gly Pro Ser Ser Gly Lys Val Gln Ala Thr Pro Pro Ser  
725 730 735

Ser Ala Thr Thr Tyr Val Glu Arg Pro Thr Val Leu Pro Ile Leu Thr  
740 745 750

Leu Leu Asp Ser Arg Val Ser Cys His Ser Gln Ala Asp Leu Gln Gly  
755 760 765

Pro Tyr Ser Asp Arg Ile Ser Pro Arg Gln Arg Arg Ser Ile Thr Arg  
770 775 780

Asp Ser Asp Thr Pro Leu Ser Leu Met Ser Val Asn His Glu Glu Leu  
785 790 795 800

Glu Arg Ser Pro Ser Gly Phe Ser Ile Ser Gln Asp Arg Asp Asp Tyr  
805 810 815

Val Phe Gly Pro Asn Gly Gly Ser Ser Trp Met Arg Glu Lys Arg Tyr  
820 825 830

Leu Ala Glu Gly Glu Thr Asp Thr Asp Thr Asp Pro Phe Thr Pro Ser  
835 840 845

Gly Ser Met Pro Leu Ser Ser Thr Gly Asp Gly Ile Ser Asp Ser Val  
850 855 860

Trp Thr Pro Ser Asn Lys Pro Ile  
865 870

<210> 31

<211> 695

<212> PRT

<213> Homo sapiens

<400> 31

Met Ala Glu Ala Pro Pro Arg Arg Leu Gly Leu Gly Pro Pro Pro Gly  
1 5 10 15

Asp Ala Pro Arg Ala Glu Leu Val Ala Leu Thr Ala Val Gln Ser Glu  
20 25 30

Gln Gly Glu Ala Gly Gly Gly Gly Ser Pro Arg Arg Leu Gly Leu Leu  
35 40 45

Gly Ser Pro Leu Pro Pro Gly Ala Pro Leu Pro Gly Pro Gly Ser Gly  
50 55 60

Ser Gly Ser Ala Cys Gly Gln Arg Ser Ser Ala Ala His Lys Arg Tyr  
 65 70 75 80  
 Arg Arg Leu Gln Asn Trp Val Tyr Asn Val Leu Glu Arg Pro Arg Gly  
 85 90 95  
 Trp Ala Phe Val Tyr His Val Phe Ile Phe Leu Leu Val Phe Ser Cys  
 100 105 110  
 Leu Val Leu Ser Val Leu Ser Thr Ile Gln Glu His Gln Glu Leu Ala  
 115 120 125  
 Asn Glu Cys Leu Leu Ile Leu Glu Phe Val Met Ile Val Val Phe Gly  
 130 135 140  
 Leu Glu Tyr Ile Val Arg Val Trp Ser Ala Gly Cys Cys Cys Arg Tyr  
 145 150 155 160  
 Arg Gly Trp Gln Gly Arg Phe Arg Phe Ala Arg Lys Pro Phe Cys Val  
 165 170 175  
 Ile Asp Phe Ile Val Phe Val Ala Ser Val Ala Val Ile Ala Ala Gly  
 180 185 190  
 Thr Gln Gly Asn Ile Phe Ala Thr Ser Ala Leu Arg Ser Met Arg Phe  
 195 200 205  
 Leu Gln Ile Leu Arg Met Val Arg Met Asp Arg Arg Gly Gly Thr Trp  
 210 215 220  
 Lys Leu Leu Gly Ser Val Val Tyr Ala His Ser Lys Glu Leu Ile Thr  
 225 230 235 240  
 Ala Trp Tyr Ile Gly Phe Leu Val Leu Ile Phe Ala Ser Phe Leu Val  
 245 250 255  
 Tyr Leu Ala Glu Lys Asp Ala Asn Ser Asp Phe Ser Ser Tyr Ala Asp  
 260 265 270  
 Ser Leu Trp Trp Gly Thr Ile Thr Leu Thr Thr Ile Gly Tyr Gly Asp  
 275 280 285  
 Lys Thr Pro His Thr Trp Leu Gly Arg Val Leu Ala Ala Gly Phe Ala  
 290 295 300  
 Leu Leu Gly Ile Ser Phe Phe Ala Leu Pro Ala Gly Ile Leu Gly Ser  
 305 310 315 320  
 Gly Phe Ala Leu Lys Val Gln Glu Gln His Arg Gln Lys His Phe Glu  
 325 330 335  
 Lys Arg Arg Met Pro Ala Ala Asn Leu Ile Gln Ala Ala Trp Arg Leu  
 340 345 350

Tyr Ser Thr Asp Met Ser Arg Ala Tyr Leu Thr Ala Thr Trp Tyr Tyr  
355 360 365  
Tyr Asp Ser Ile Leu Pro Ser Phe Arg Glu Leu Ala Leu Leu Phe Glu  
370 375 380  
His Val Gln Arg Ala Arg Asn Gly Gly Leu Arg Pro Leu Glu Val Arg  
385 390 395 400  
Arg Ala Pro Val Pro Asp Gly Ala Pro Ser Arg Tyr Pro Pro Val Ala  
405 410 415  
Thr Cys His Arg Pro Gly Ser Thr Ser Phe Cys Pro Gly Glu Ser Ser  
420 425 430  
Arg Met Gly Ile Lys Asp Arg Ile Arg Met Gly Ser Ser Gln Arg Arg  
435 440 445  
Thr Gly Pro Ser Lys Gln Gln Leu Ala Pro Pro Thr Met Pro Thr Ser  
450 455 460  
Pro Ser Ser Glu Gln Val Gly Glu Ala Thr Ser Pro Thr Lys Val Gln  
465 470 475 480  
Lys Ser Trp Ser Phe Asn Asp Arg Thr Arg Phe Arg Ala Ser Leu Arg  
485 490 495  
Leu Lys Pro Arg Thr Ser Ala Glu Asp Ala Pro Ser Glu Glu Val Ala  
500 505 510  
Glu Glu Lys Ser Tyr Gln Cys Glu Leu Thr Val Asp Asp Ile Met Pro  
515 520 525  
Ala Val Lys Thr Val Ile Arg Ser Ile Arg Ile Leu Lys Phe Leu Val  
530 535 540  
Ala Lys Arg Lys Phe Lys Glu Thr Leu Arg Pro Tyr Asp Val Lys Asp  
545 550 555 560  
Val Ile Glu Gln Tyr Ser Ala Gly His Leu Asp Met Leu Gly Arg Ile  
565 570 575  
Lys Ser Leu Gln Thr Arg Val Asp Gln Ile Val Gly Arg Gly Pro Gly  
580 585 590  
Asp Arg Lys Ala Arg Glu Lys Gly Asp Lys Gly Pro Ser Asp Ala Glu  
595 600 605  
Val Val Asp Glu Ile Ser Met Met Gly Arg Val Val Lys Val Glu Lys  
610 615 620  
Gln Val Gln Ser Ile Glu His Lys Leu Asp Leu Leu Leu Gly Phe Tyr  
625 630 635 640  
Ser Arg Cys Leu Arg Ser Gly Thr Ser Ala Ser Leu Gly Ala Val Gln

				645					650					655
Val	Pro	Leu	Phe	Asp	Pro	Asp	Ile	Thr	Ser	Asp	Tyr	His	Ser	Pro Val
			660					665					670	
Asp	His	Glu	Asp	Ile	Ser	Val	Ser	Ala	Gln	Thr	Leu	Ser	Ile	Ser Arg
		675					680					685		
Ser	Val	Ser	Thr	Asn	Met	Asp								
	690					695								

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